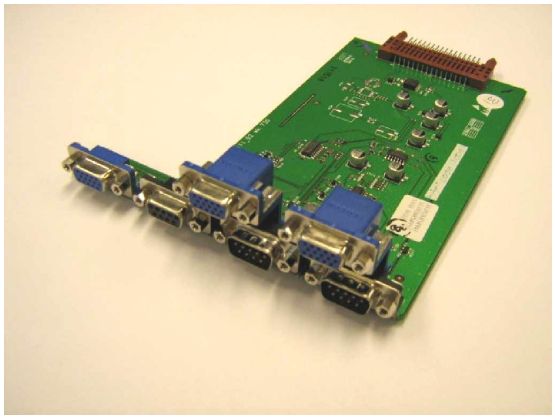
PHILIPS

Loop-Through Card
Installation Guide

Part # CRA01/00



LT Installation Guide 1.1 (140907)
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A. Introduction

CRA01/00 is a Loop-Through (LT) interface card designed to support VGA content connectivity and RS232 control in daisy chain configurations on select Philips SmartCard-enabled displays. Please refer to the product leaflet for the detailed feature specifications.

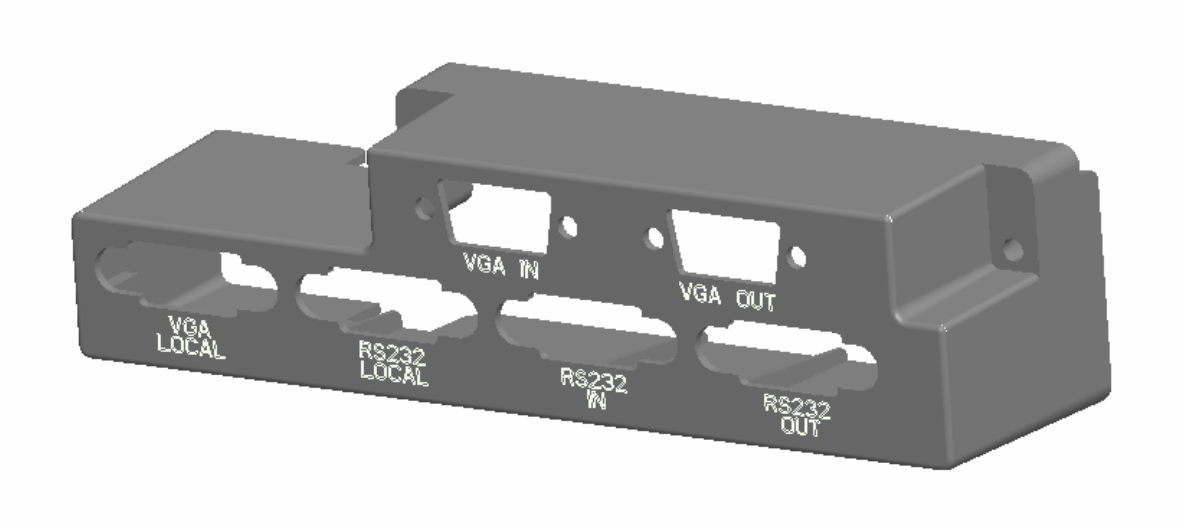
This guide will provide the basic steps for installing the LT card into a Philips SmartCard-enabled display.

B. Package Contents

Your CRA01/00 package should contain the following:

1 x LT card module
1 x LT card cap (see Fig. 1 below)
1 x VGA cable (30cm/ 11.811")
1 x RS232 cable (20cm/ 7.874")
Installation Guide (this document)
Global Warranty Card

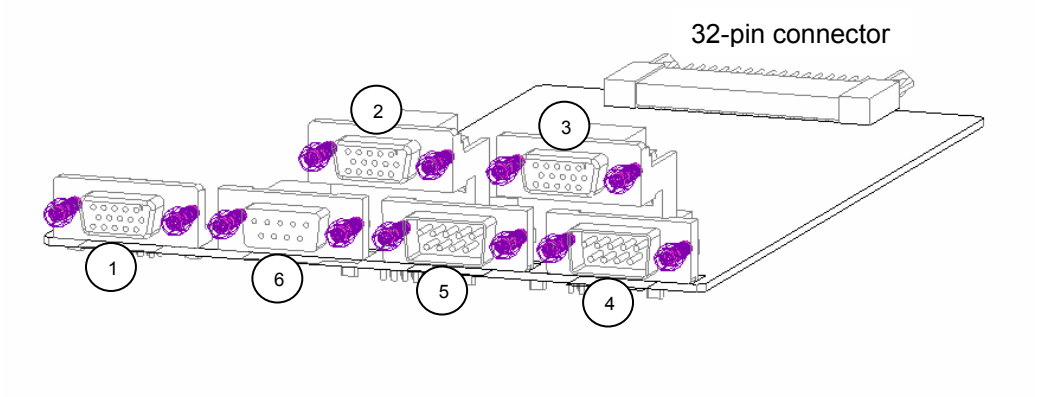
Fig. 1 – LT card cap



C. Brief Electrical Specifications

Supply Voltage:	12V +/- 10%
Supply Current:	0.12A (Nominal)
Power Consumption:	1.44 W (Nominal)

D. Loop-Through Card I/O Interfaces



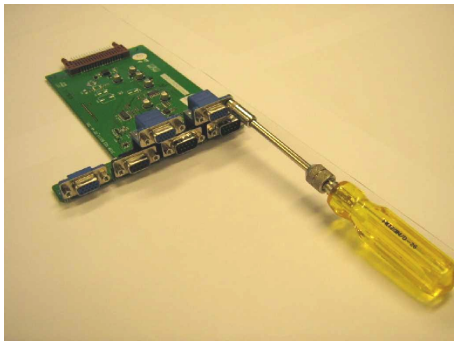
	Connector	Application
1	15-pin D-SUB Female	VGA Out (Local)
2	15-pin D-SUB Female (High Rise)	VGA In
3	15-pin D-SUB Female (High Rise)	VGA Out (External)
4	9-pin D-SUB Male	RS232 Out (External)
5	9-pin D-SUB Male	RS232 In
6	9-pin D-SUB Female	RS232 Out (Local)

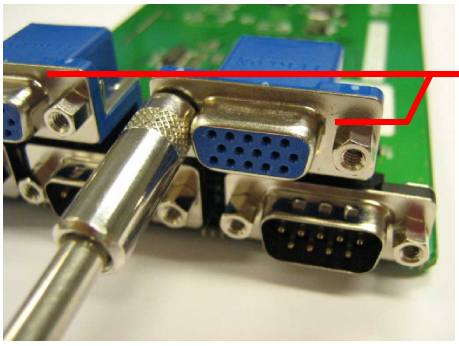
E. Installation Instructions

1. Turn off the power to your Philips monitor and disconnect the power cable.
2. Place monitor face-down on a clean, non-abrasive surface.
3. Locate the SmartCard slot opening on the rear of the display. (see Fig. 2 below)

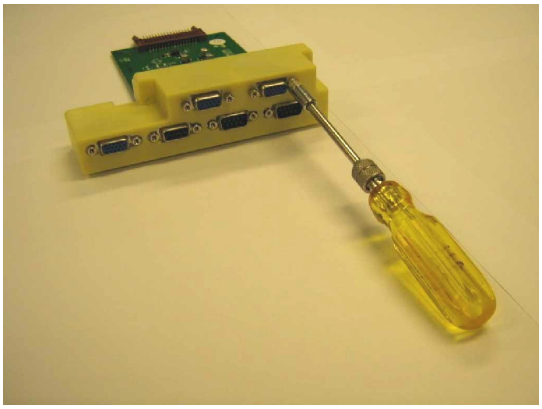
4. Remove the SmartCard slot cap from the display by removing the two screws circled below. Keep the screws for use in step 8.

5. Remove the hex nuts from the high-rise 15-pin D-SUB connectors as shown below with a 5mm nut driver tool. Keep the hex nuts for use in step 6.

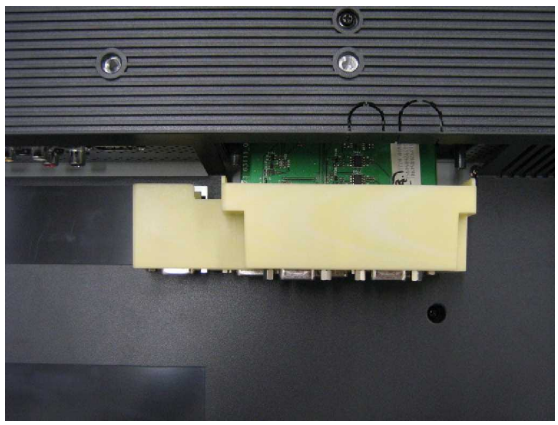




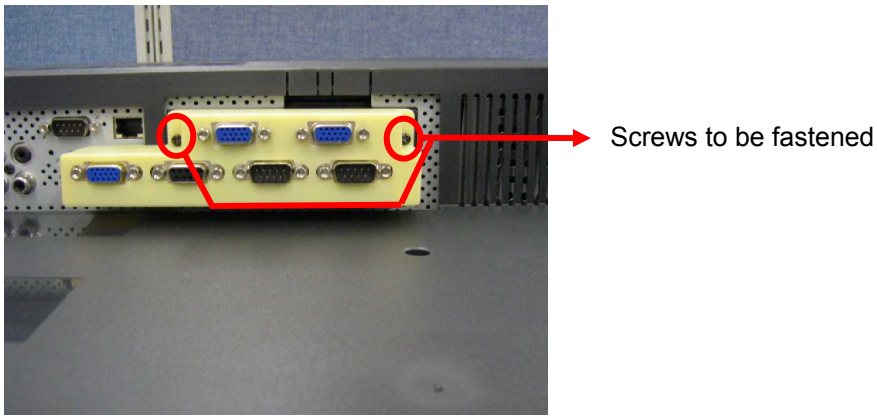
6. Place the LT card cap over the LT card as shown below. Secure the card cap by re-fastening the hex nuts onto the high-rise 15-pin D-SUB connectors.



7. Insert the LT card into the SmartCard slot as shown below. Ensure that the card is securely connected to the internal 32-pin socket.



8. Secure the LT card to the display by re-fastening the screws that were removed in step 4.



9. Use the included VGA cable to connect the VGA Local on the LT card to the VGA In on the display as shown.

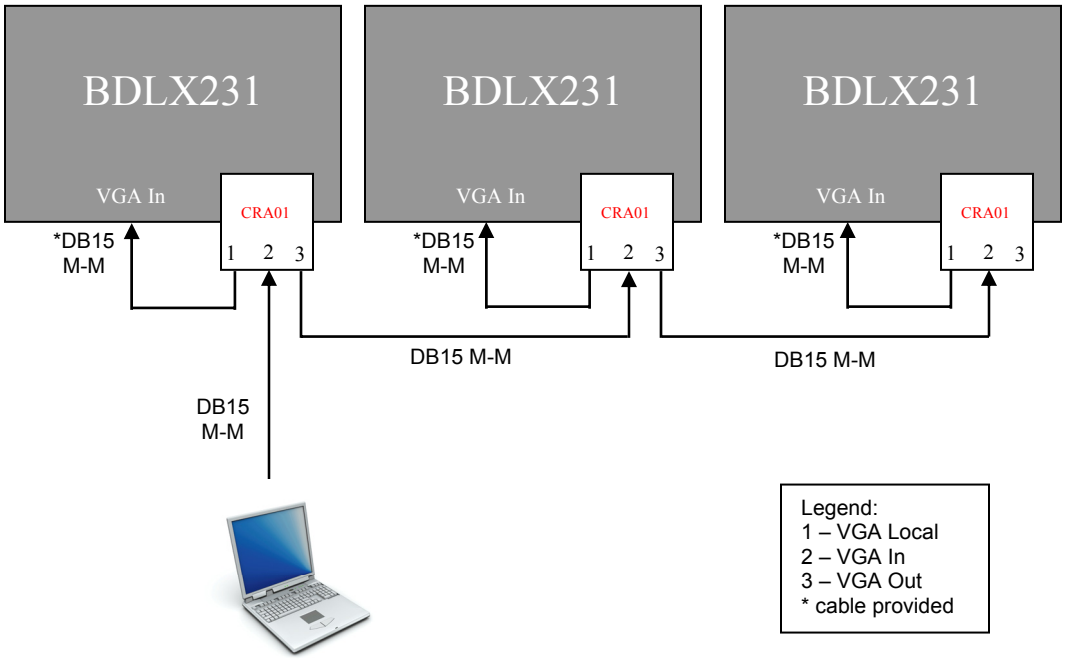
10. Use the included RS232 cable to connect the RS232 Local on the LT card and the RS232 In on the display as shown.

F. Connection Instructions

1. VGA

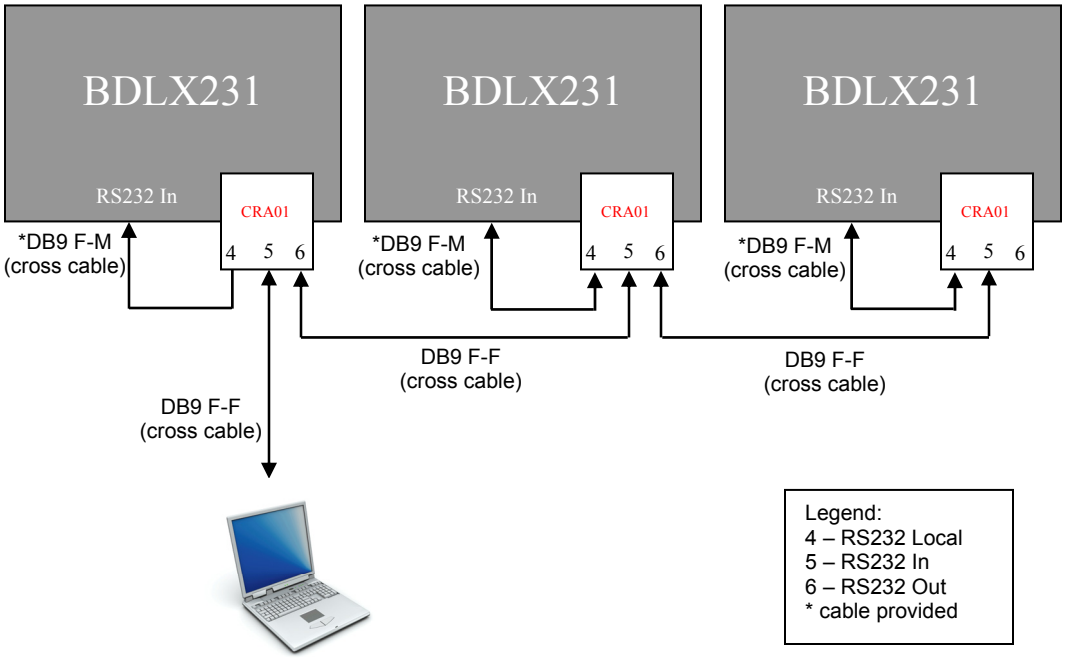
The diagram below illustrates the VGA connection configuration to a PC and multiple displays.

Important note: The VGA cable from the PC to the first display should be type E101344 with all 15 pins available to ensure EDID read out.



2. RS232 (Serial Communications)

The diagram below illustrates the RS232 connection configuration to a PC and multiple displays.



G. Troubleshooting

There is no image on the "head" display (the unit that initially receives source input)

1. Make sure that the VGA input has been selected on the display.
2. Double-check the local connection: Is the VGA Local on the LT card properly connected to the VGA input on the display?
3. If there is still no image check the PC output by directly connecting the PC's VGA cable to the display's VGA input. If there is an image on the screen this may indicate a defective card.
4. If after Step 3 there is still no image then swap the display with another display that has been proven to function properly and re-install the LT card.
5. If after Step 4 there is still no image, swap the LT card with a card that has been proven to function properly.
6. If there is still no image after following the preceding steps, the LT card is probably defective. Please consult the product's Warranty Card for service instructions.

The "head" display is working, but the next display (Display 2) doesn't show an image.

1. Make sure that the VGA input has been selected on Display 2.
2. Double-check the local connection:
    - Is the VGA Local properly connected to the VGA input on the "head" display? And,
    - Is the output of the "head" LT card connected to the next input (either VGA input on card 2 or VGA input on Display 2)?
3. If after Step 2 there is still no image on Display 2 then swap Display 2 with another display that has been proven to function properly and re-install card 2.
4. If after Step 3 there is still no image on Display 2 then swap card 2 with a card that has been proven to function properly. If there is now a visible image on display2 the card is likely broken

RS232 doesn't seem to work properly via the LT card.

1. Follow the same steps for troubleshooting RS232 issues as used above for troubleshooting VGA issues.

Important general remarks

1. The LT card uses amplifiers to amplify the video signals. Electronic amplifiers inherently add noise to these signals. When looping through the signals there will always be some signal degradation and the acceptability is a subjective matter. There is a dependency of the quality of the interconnecting cables that are used so always use high quality cables with ferrites.
2. Long cables and loop through of the RS232 signals influence the effective transmission bandwidth (signal slopes will be affected). Therefore it is advised to use lower baud rates when more displays are looped through and longer distances are covered. There are cable quality dependencies and the system integrator will need to try out which is the optimal baud rate for the installed network.

How many units can be daisy chained

For VGA the product has been tested up to 5 displays. More units can be daisy chained but some picture quality degradation may be visible. For RS232 only at least 10 units can be daisy chained.

Maximum distance between signal source and the last daisy chained display

Philips recommends not to exceed 30 meters / 98 feet between the signal source (usually a PC) and last daisy chained display.

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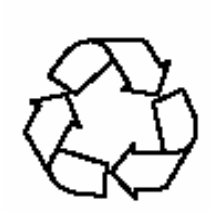

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